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FERMENTATION PROCESS DEVELOPMENT FOR THE PRODUCTION OF BIO-ETHANOL - THE PARTICULAR CASE OF CHEESE WHEY

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Bio-ethanol production from cane sugar and corn starch is a well established process. However, the requirements for ethanol production demand the use of materials that are available in large amounts and that do not compete with other industrial applications. Also, more efficient microbial strains, stable and high productivity bioreactors and optimized process integration are needed.

A presentation of the different process that are being developed for biomass treatment for bio-ethanol production will be presented and the impact of each technology on the fermentation process will be considered, with a particular emphasis on the removal of generated toxic compounds. Fermentation is the core of the bio-ethanol production process and a particular attention will be devoted to the implementation of continuous high cell density reactors and a detailed analysis of their advantages/disadvantages will be discussed.

Taken in account the importance of cheese whey as a substrate for bio-ethanol production, results on the development of efficient lactose fermenting *Saccharomyces* yeast strain and its use on a continuous bioreactor will be presented.

Finally, the use of cheese whey as a substrate for the production of an alcoholic beverage will be discussed.